Martin, Thomas

From: Turner, Kevin
Sent: Friday, January 24, 2014 1:51 PM
To: Martin, Thomas
Subject: FW: New MSDS
Attachments: MSDS Form.pdf; ATT00001.htm

fyi.....

This is a new MSDS sheet that will be added to the shipping papers for the slag material.

From: scott dahle <sldahle@gmail.com>
Sent: Thursday, January 23, 2014 9:50 PM
To: Turner, Kevin; egstegin Stegin; Daniel Nester; Donald Samson; Steve Zuber-SIOR CCIM; Judy Gifford
Subject: New MSDS

All:

MATERIAL SAFETY DATA SHEET

Rev 2-10/04/2005

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Estate of Chemetco, Inc.
3574 Chemetco Lane
Hartford, IL USA 62048

Company Phone Number: (618) 254-4381 Ext 332
Emergency Phone Number: (618) 254-4381 Ext 230

Product Name: Copper Slag

Issue Date: 10/04/2005 (Rev 2)
Supersedes Date: 8/5/2005 (Rev 1)

Section 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance/Odor: Black, Gray, or Multi-colored metal-silicate ceramic-like solid. Commercially shipped in sizes ranging from 3" OD to granules slightly larger than sand grains. Odorless.

Potential Health Effects: See Section 11 for more information

Likely Routes of Exposure: Eye contact, skin contact, inhalation, and ingestion.

Eye: Minor irritation can occur due to mechanical action of granular

Skin: Minor irritation can occur due to mechanical action of granular materials.

Inhalation: Zinc Oxide: Inhalation of high levels of zinc oxide may cause irritation to the respiratory tract. Inhalation may cause a flu-like illness (metal fume fever). This 24- to 48-hour illness is characterized by chills, fever, aching muscles, dryness in the mouth and throat and headache. Lead Oxide: Inhalation of high levels of inorganic lead compounds can have cumulative blood, neurologic, or reproductive hazards. Due to the low levels of Zinc Oxide and Lead Oxide in the copper slag, the potential for inhalation of a quantity of copper slag dust to be harmful is considered to be very remote.

Ingestion: Lead Oxide: Ingestion of high levels of lead oxide may have cumulative blood, neurologic or reproductive hazards. Due to the low levels of Zinc Oxide and Lead Oxide in the copper slag, the potential for ingestion of a quantity of copper slag to be harmful is considered to be very remote.

Medical Conditions Aggravated by Exposure:

None.

Target Organs: Zinc Oxide: respiratory system; Lead Oxide: digestive tract, central nervous system, blood, and gingival tissue.

This product does contain Lead Oxide, a possible carcinogen, as listed by IARC. Cadmium and Nickel compounds are potential carcinogens as listed by OSHA.

This product is considered to be hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

Potential Environmental Effects: (See Section 12 for more information)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	% by Wt.	
Iron Oxide (Fe_2O_3)	1309-37-1	33.0-40.0	
Silica (SiO_2)	7631-86-9	25.0-35.0	amorphous silica
Zinc Oxide (ZnO)	1314-13-2	6.0-10.0	
Alumina (Al_2O_3)	1344-28-1	2.0-5.0	
Calcium Oxide (CaO)	1305-78-8	2.0-3.0	
Copper Oxide (Cu_2O)	1317-39-1	<2.0	
Lead Oxide (Pb_3O_4)	1314-41-6	<2.0	
Tin Oxide (SnO)	21651-19-4	<1.5	
Nickel Oxide (NiO)	1313-99-1	<0.5	

Section 4: FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for at least 15 minutes.

Skin Contact: Remove contaminated clothing and wash before reuse. Wash skin with soap and water.

Inhalation: Move to fresh air.

Ingestion: DO NOT induce vomiting. Get IMMEDIATE medical attention.

Section 5: FIRE FIGHTING MEASURES

Flammability: Non-flammable solid **Flash Point:** >200°F
Autoignition Temperature: N/A

Explosive Limits: Upper: N/A Lower: N/A

Extinguishing Media: Use suitable extinguishing media for surrounding materials and type of fire.

Protection of Firefighters: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent dust inhalation contact with eyes. Isolate runoff to prevent environmental pollution.

Products of Combustion: None.

Section 6: ACCIDENTIAL RELEASE MEASURES

Personal Protection: Use personal protection recommended in Section 8.

Environmental Precautions: This product contains components that are potential water pollutants. Do not let spilled product enter waterways.

Methods for Containment: Mist with water to keep dust damp. Avoid using too much water.

Methods for Clean-up: Sweep dry or semi-dry product into a pile and shovel into a container. If wet, use wet vacuum or slurry pump if large quantity involved and place in an

isolated area or open container to dry.

Other Information: Spills of product do not need to be reported to the National Response Center.

Section 7: HANDLING AND STORAGE

Handling

Keep away from strong acids or strong oxidizers. Do not get dust in eyes. Do not breathe dust from product. Avoid contact with skin. Wash thoroughly after handling and especially before eating or smoking.

Storage

May be stored outside but provisions should be made to avoid any water contacting the copper slag from being discharged to the environment. Any dust should be controlled by covering or the use of water spray(s). Any residual copper slag should be properly disposed. (For disposal, see Section 13: Disposal Considerations).

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

The copper slag has not been evaluated as to exposure. The following chemicals in the copper slag have exposure limits but since these chemicals are bound up in the metal-silica structure of the slag, the risk of exceeding these limits appears to be very remote.

Zinc Oxide:	TWA: 5.0 mg/m^3 (OSHA); TWA: 2.0 mg/m^3 (ACGIH)
Lead Oxide	TWA: 0.05 mg/m^3 (OSHA/ACGIH)
Copper Oxide	TWA: 0.1 mg/m^3 (OSHA); TWA: 0.2 mg/m^3 (ACGIH)
Tin Oxide	Not established (OSHA); TWA: 2.0 mg/m^3 (ACGIH)
Iron Oxide	TWA: 10.0 mg/m^3 (OSHA); TWA: 5.0 mg/m^3 (ACGIH)
Calcium Oxide	TWA: 5.0 mg/m^3 (OSHA); TWA: 2.0 mg/m^3 (ACGIH)
Nickel Oxide	Not established (OSHA/ACGIH), Ni as dust: TWA: 1.0 mg/m^3 (OSHA); Ni as insoluble inorganic compounds: TWA: 0.1 mg/m^3 (ACGIH)
Silica Oxide	TWA: 80.0 mg/m^3 divided by $\%SiO_2$ (OSHA); TWA: 6.0 mg/m^3 (NIOSH)

Engineering Controls: Provide local exhaust ventilation for dust or use of water spray(s) to prevent fugitive dust..

Eye/face Protection: Prevent eye contact, such as wearing safety glasses or goggles.

Skin Protection: Prevent skin contact, such as wearing tightly woven clothing with long sleeves and pants to cover the lower body, boots or suitable coverage of ankles and feet, head cover, and impermeable gloves.

Respiratory Protections: Use NIOSH-approved air-purifying respirator with an air protection factor of at least 10 (APF=10) and that meets the air-purifying requirements of any other operation in the area where the product is being handled.

General Hygiene Considerations: Wash thoroughly after handling and especially before eating or use of tobacco products. Remove wet or contaminated clothing.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Color:	Black, Gray, or Multi-colored.
Odor:	Odorless
Odor Threshold:	Not available
Physical State:	Metal-silicate, ceramic-like solid. Commercially shipped in sizes ranging from 3" OD to granules slightly larger than sand grains.
pH:	Not available
Boiling Point:	>2000°C
Melting Point:	>1800°C
Flash Point:	>200°F
Flammability (solid):	Not applicable
Density:	~234 lbs/ft^3 or ~3,748 kg/m^3 (approximately)
Solubility in Water:	Not soluble in water.

Section 10: STABILITY AND REACTIVITY

Stability: Stable.

Conditions to Avoid: None

Incompatible Materials: Will dissolve if in contact with hydrofluoric acid or other strong acids or caustics.

Hazardous Decomposition Products: Toxic fumes from metal oxides can be generated if copper slag is in contact with hydrofluoric acid or other strong acids or caustics.

Possibility of Hazardous Reactions: Remote possibility of hazardous reactions as long as product does not experience contact with hydrofluoric acid or other strong acids or caustics.

Section 11: TOXICOLOGY INFORMATION

No toxicological information available on product but the following information is available for the components:

Immediately Dangerous to Life and Health (IDLH) Concentrations (ACGIH):

The copper slag has not been evaluated as to IDLH. The following chemicals in the copper slag have IDLH limits but since these chemicals are bound up in the metal-silica structure of the slag, the risk of exceeding these limits appears to be very remote.

Zinc Oxide:	500 mg/m^3
Lead Oxide	Possible Carcinogen, Concentration not established
Copper Oxide	100 mg/m^3
Tin Oxide	Not established
Iron Oxide	2,500 mg/m^3 as iron oxide fume or dust (ACGIH)
Calcium Oxide	25 mg/m^3 (ACGIH)
Nickel Oxide	Potential Carcinogen, 10 mg/m^3 (ACGIH)
Silica Oxide	3000 mg/m^3

Section 12: ECOLOGICAL INFORMATION

The product has components that includes toxic metals which could impact the ecology if spilled in significant quantities. Any spilled product should be contained and placed contained areas, such as a sealed concrete pad with barrier walls or inside containers that are sufficient to hold this heavy, somewhat abrasive copper slag until it can be properly recycled or disposed.

Section 13: DISPOSAL CONSIDERATIONS

Disposal: Spilled or contaminated product should be characterized and disposed according to local, state, and/or federal regulatory requirements.

Section 14: TRANSPORTATION INFORMATION

USDOT Hazardous Material:	Yes
Hazardous Material Name:	Environmentally Hazardous Substance, N.O.S.
Hazard Class:	Class 9
Reportable Quantity:	Not established
U.N. No.:	UN 3077
ORM #.:	N/A
Placard Requirement:	Class 9
Shipping Label:	Copper Slag
Waste Manifest:	None required
Typical Packaging:	Truck Bulk Carrier or Railroad Hopper Car
Typical Net Wt. Per Package:	~20,000 lbs/truck to ~196,000 lbs/rail hopper car

Section 15: REGULATORY INFORMATION

USEPA Hazardous Waste: No. This substance is a by-product, not a waste, of secondary copper smelting operations, therefore, it is not regulated under RCRA.

USEPA TSCA Inventory: Yes, this product is regulated under TSCA and must maintain records of shipments and report in the reporting year every four years of the quantity shipped that exceeded 10,000 lbs in the year prior to the reporting year.

USOSHA: This product is considered to be hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

Section 16: OTHER INFORMATION

Process Generating the Product: Pyrometallurgical copper refining where the copper slag is formed from the iron and silica used to smelter copper and lead/tin solder. Zinc Oxide and other metallic oxides are present due to their presence in the raw materials being smelted.